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SPECIFICATION FOR HANDLE GRIP FOR POWER TILLER

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SPECIFICATION FOR HANDLE GRIP FOR POWER TILLER

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SPECIFICATION FOR HANDLE GRIP FOR POWER TILLER

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 30 October 1986, after the draft finalized by the Agricultural Tractors and Power Tillers Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 Handle grip of the power tiller is a component which comes in contact with the operator's grip. To facilitate interchangeability of the grip in various makes of the power tiller, this standard has been formulated.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard specifies material, dimensions and other requirements of handle grip for power tiller.

2. MATERIAL

2.1 The grip shall be made of synthetic rubber or a combination of synthetic and natural rubber, compounded and vulcanized. It shall not contain any reclaimed or vulcanized waste.

3. DIMENSIONS

3.1 The dimensions of the grip shall be as given in Fig. 1.

4. PHYSICAL REQUIREMENTS

4.1 The rubber used for grip shall conform to the requirements given in Table I.

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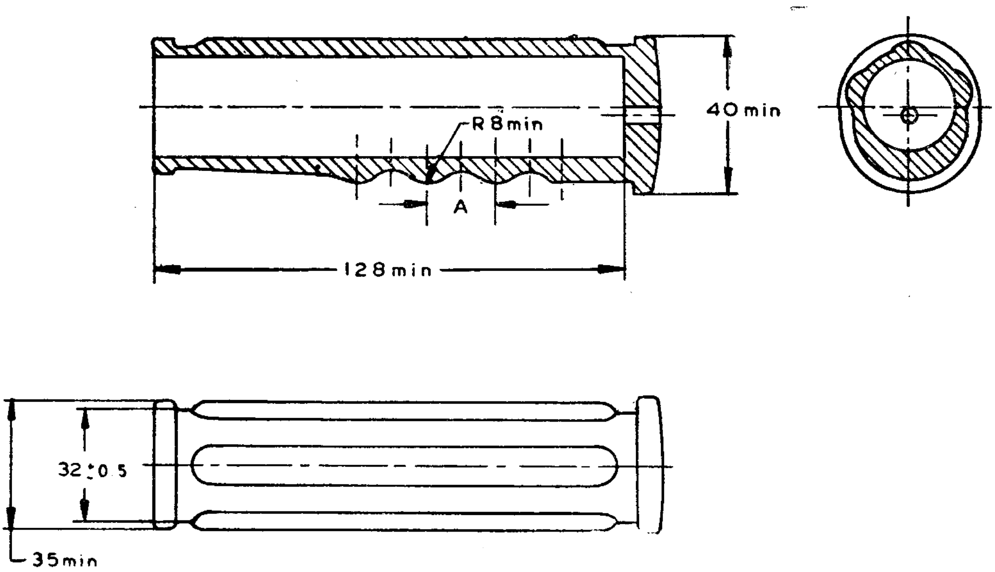
*Rules for rounding off numerical values (*revised*).



All dimensions in millimetres.

FIG. 1 HANDLE GRIP

4.2 Tubing cut from the grip when subjected to the test prescribed under 6.4 shall not show any sign of cracking or other evidence of failure of the stretched part.

5. OTHER REQUIREMENTS

5.1 The colour and design on the surface of the grip shall be as agreed to between the purchaser and the supplier.

5.2 Minimum 3 longitudinal projections shall be provided for proper gripping.

5.3 Circular grooves, 4 in number, shall be provided at a minimum pitch of 19 mm (see A in Fig. 1) for proper finger grip.

5.4 The grip shall be homogeneous in composition, shall be adequately vulcanized, evenly and smoothly finished on inner tubing. The composition shall be free from irritants and have no known injurious effect on person with whom it may come in contact.

TABLE **1** PHYSICAL REQUIREMENTS OF RUBBER USED FOR HANDLE GRIP

(Clause 4.1)

SL No.	CHARACTERISTIC	VALUE BEFORE AGEING	MAXIMUM CHANGE FROM THE ORIGINAL VALUE AFTER ACCELERATED AGEING AT 70 ± 1°C FOR 168 HOURS IN AIR OVEN
(1)	(2)	(3)	(4)
i)	Tensile strength, MN/m^2, *Min*	10·0	$^{+10}_{-25}$ percent
ii)	Elongation at break, percent, *Min*	400	$^{+0}_{-25}$ percent
iii)	Percent elongation under a tensile stress of 2 800 kN/m^2 of original area of cross section of test piece	Between 100 and 250	—
iv)	Tension set (at 200 percent elongation), percent, *Max*	10	—
v)	*p*H of water extract	7 ± 0·5	—
vi)	Extractable colour	No colour or precipitate shall be formed but faint turbidity (to the extent of slight translucence) may be permitted	—

5.5 The grip shall be free from pin-holes, pits, cracks, crevices, grooves and other defects.

6. TEST METHODS

6.1 Unless otherwise agreed to between the purchaser and the supplier, all tests shall be carried out within 3 months of the date of receipt of the material by the purchaser.

6.2 **Test Pieces** — It is not possible to carry out conveniently some of the tests on the grip itself. In such cases, tests shall be carried out on press cured slabs made from the same mix and vulcanized as closely as possible to the same degree as the grip. The number of slabs to be provided with the lot shall be as agreed to between the purchaser and the supplier.

6.3 Physical Properties

6.3.1 ***Tensile Strength and Elongation at Break — Carry*** out the test on dumb-bell test pieces cut out of press cured slabs in accordance with the method prescribed in IS : 3400 (Pzrt 1)-1977*.

6.3.2 ***Accelerated Ageing*** — Subject dumb-bell test pieces to ageing at ***70 ± 1°C*** for 168 hours in an air-oven or a cell oven in accordance with the method prescribed in IS : 3400 (Part 4) - 1978† and test it according to 6.3.1.

6.3.3 ***Elongation Under a Fixed Tensile Stress*** — This test shall be carried out as indicated in 6.3.1 on the grip tubing itself and the percentage elongation is measured when a tensile stress of 2 800 kN/m^2 of the original area of cross-section of test piece has been applied.

6.3.4 ***Tension Set*** — This test shall be carried out on the grip tubing in accordance with IS : 3400 (Part 13)-1983‡.

6.3.5 *p*H of ***Water Extract*** — This test shall be carried out in accordance with Appendix A.

6.3.6 ***Extractable Colour*** — Carry out this test in accordance with Appendix B.

6.4 Resistance to Ageing Under Tension — The cut end of a piece of tubing of the grip shall be fitted over a glass tube of external diameter 40 to 50 percent greater than the internal diameter of the rubber tubing and the hole subjected to accelerated ageing for 168 hours at 70 ± 1°C as prescribed in 6.3.2.

7. MARKING AND PACKING

7.1 Marking — Each grip shall be legibly marked with the manufacturer's name and/or recognized trade-mark, batch or code number.

7.1.1 The grip may also be marked with the Standard Mark.

NOTE — The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

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*Methods of test for vulcanized rubbers: Part 1 Tensile stress-strain properties (*first revision*).

†Methods of test for vulcanized rubbers: Part 4 Accelerated ageing (*first revision*).

‡Methods of test for vulcanized rubbers: Part 13 Tension set (*first revision*).

7.2 Packing — The grip shall be packed as agreed to between the purchaser and the supplier.

8. SAMPLING FOR LOT ACCEPTANCE

8.1 Unless otherwise agreed to between the purchaser and the supplier, the sampling of the grip for lot acceptance shall be done in accordance with 3 of IS : 7201-1974*.

APPENDIX A

(*Clause* 6.3.5)

DETERMINATION OF *p*H OF WATER EXTRACT

A-1. PROCEDURE

A-1.1 Cut 5 grips into 2 mm pieces. Autoclave the pieces for 5 minutes at a pressure of 40 to 50 kN/m^2 with 200 ml of water. Discard the first extract and repeat the process with another 500 ml of water for **40** minutes. Decant the extract, cool and determine the *p*H with a meter.

APPENDIX B

(*Clause* 6.3.6)

TEST FOR EXTRACTABLE COLOUR

B-1, PROCEDURE

B-1.1 Cut 5 grips into 10 mm pieces and mix them. Weigh about 20 g of these pieces. Autoclave them with 100 ml of water under a steam pressure of 100 to 135 kN/m^2 at a temperature of 120 to 125°C for 33 minutes. Cool and examine the extracted solution.

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*Method of sampling of agricultural machinery and tractors.

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